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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| App. No.: | 10/652,643 | Att'y Docket: | EH-10592 (02-648) |
| Filing Date: | August 28, 2003 | Conf No.: | 1822 |
| Inventor(s): | Steven J. Bullied et al. | Group Art Unit: | 1725 |
| Assignee: | United Technologies Corporation | Examiner: | Kuang Y. Lin |
| Title: | INVESTMENT CASTING | | |

Correspondence Address:
Customer Number 34704

DECLARATION UNDER 37 CFR § 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The undersigned, John J. Marcin, Jr., declares as follows:

1. I am employed as Manager of the Pratt & Whitney Casting Laboratory of United Technologies Corporation Company.
2. I have 23 years of experience in industrial experience in aerospace high temperature material development and casting technologies. I have a Bachelors of Science Degree in materials engineering from Lehigh University, a Masters of Science Degree in metallurgy from Renssalaer Polytechnic Institute, and an MBA from Renssalaer Polytechnic Institute. I am a licensed Professional Engineer in the State of Connecticut. I am an adjunct professor at Renssalaer Polytechnic Institute teaching masters level materials/mechanical engineering courses.
3. I have read and understand and am familiar with the disclosures of U.S. Patent 4,702,298 of Blazek and 4,170,256 and 4,066,166 of Blazek et al. as well as U.S. Patent Application Publications 2002/0005265 A1 of Ford and 2005/0045301 A1 of Bullied et al. (the present application). I have read the Declaration under 37 CFR § 1.132 of Steven J. Bullied, dated September 27, 2005, regarding the present application.

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4. I have read the amended claims of the present application in an amendment dated February 22, 2006.

5. It is inherent from the drawings, specification text, and claims of the '301 publication that the blades identified in claim 1 are formed separately from any disk to which they are to be attached. One of ordinary skill in the art (e.g., casting of aircraft engine components) would find this readily apparent from the present application and, also, within his or her background knowledge. One of ordinary skill in the art would know of disk manufacturing techniques (typically forging, but also hot isostatic pressing (HIP)).

6. One of ordinary skill in the art would understand that the particular manufacturing technique for any associated disk is irrelevant to claim 1. Thus, the Office action had a statement that "It is not clear whether the statement of 'separately formed disk' is [sic] referred to forming the disk in a separate process step or to forming the disk in a separate mold cavity." This statement in the Office action is not only wrong but irrelevant. Furthermore, the original wording of the claim 1 preamble would have been perfectly clear to one of ordinary skill in the art. It is my understanding that amendments to reference "separate" and/or "separately formed" were asserted merely to assuage the examiner. As far one of ordinary skill in the art would have been concerned, neither of those modifications alter the claim interpretation or either positively or negatively affect what is an otherwise clear claim.

7. One of ordinary skill in the art would find no ambiguity in claim 1. Specifically, one of ordinary skill in the art would not read claim 1 as requiring that the disk be simultaneously cast in a separate mold cavity. As noted above, forging is a more typical separate forming process. One of ordinary skill would understand that the disk is a separate component to which the blade is assembled.

8. The subject matter of claims 1-3 and 5-21 is not found in the Blazek or Blazek et al. patents or Ford publication and would not have been an obvious variation thereon. The Blazek

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and Blazek et al. patents disclose a casting of a single part using a multi-section shell. For example, the Blazek patent addresses assembly and alignment issues for the shell sections (these issues are critical when using multiple sections to cast a single part).

9. Examples of Blazek/Blazek et al. cast parts are diffuser cases, nozzle rings, bearing supports, and fan frames. Some of these components may have fixed vane airfoils. They are not blades. It is worth note that, when referring to an airfoil, the airfoil may have ends identified as a root and a tip. When part of a blade, the airfoil root is distinct from the blade root. The blade root (sometimes identified as a fir tree due to its convoluted section) may, for example, depend from the underside of a platform whereas the airfoil root will be at the outside of such platform.

10. One of ordinary skill in the art would not regard the Blazek/Blazek et al. teachings as applying to the manufacture of blades as is stated in independent claim 1.

11. One of ordinary skill in the art would similarly not regard the Blazek/Blazek et al. teachings as applying to the formation of separate parts, generally (not limited to blades), as is identified in claim 8.

12. It is worth note that a typical blade manufacturing technique has long involved assembling a cluster of patterns and shelling the assembled patterns. This technique predated the Blazek/Blazek et al. patents and continues. The Ford publication is one example of such a construction. This is clearly identified at paragraphs 0017&18 of Ford. Thus, the art has not adapted any teachings of Blazek/Blazek et al. or other sources to produce the presently-claimed invention of claims 1 and 8 and the claims dependent thereon. Clearly continuation of the existing techniques involves teaching away from any such adaptation of Blazek/Blazek et al.

13. Accordingly, one of ordinary skill in the art, even if aware of Blazek/Blazek et al. would not have applied the sections of Blazek/Blazek et al. to Ford or its equivalent to produce the claimed pluralities of blades or other parts of claims 1 and 8 and their dependent claims.

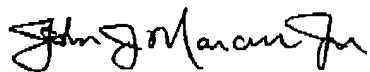
14. Similarly, the claimed invention of claims 3, 5-7, and 11-28 would not have been obvious over the Blazek or Blazek et al. patents or Ford publication individually or in combination.

15. Independent claims 13, 19, and 20 (and dependent claim 6) all identify the positioning of filters in a feeder conduit of a distribution manifold. Although filters are known in the art, there is no suggestion for this claimed general positioning let alone the more specific positioning identified in several of the claims. For example, Ford is not configured to feature a plurality of filters. Even with the hindsight teaching of the present application, the Ford configuration would accept only a single common filter at the junction of shell portions formed over the pattern portions 6 and 4.

16. I concur with the identification of advantages in the present application as outlined *inter alia* at paragraph 0023 of the publication (0025 of the application). One of these that I find particularly significant is the use of relatively small shelling and autoclaving equipment.

16. The undersigned declares further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,



John J. Marcin, Jr.

Date: 3/14/06